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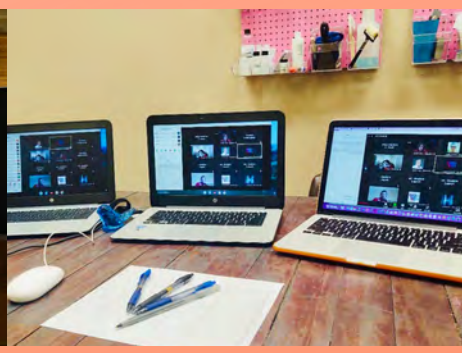
COMPUTER SCIENCE in ARKANSAS

SEAN GRAY NAMED 2020 ARKANSAS COMPUTER SCIENCE EDUCATOR OF THE YEAR

LITTLE ROCK — Gov. Asa Hutchinson and the Arkansas Department of Education are excited to announce that Sean Gray, a computer science teacher at Marion High School in Marion, AR, was selected as the 2020 Arkansas Computer Science Educator of the Year.

“Congratulations to Mr. Gray for being named the 2020 Arkansas Computer Science Educator of the Year,” Hutchinson said. “Over the last three years, Mr. Gray has spearheaded the district’s computer science efforts. He has applied for and received a national grant to improve computer science courses at his school, seeks out opportunities to grow professionally, and actively engages his students in computer science education. Mr. Gray hosts coding events that draw large attendance after school hours, connects his students with industry experts from around the world, and has led multiple field trips to area companies so students can see firsthand the important role of computer science in the workplace. He serves as a model of excellence in this very important field and is very deserving of this honor."

The #CSforAR / #ARKidsCanCode team reviewed all applications and selected the five state finalists. Last year’s Computer Science Educator of the Year, Karma Turner, along with other education and computer science industry representatives, then reviewed the finalists’ applications and selected Gray as the winner. Each review group considered the overall quality of each application; the applicants’ vision for and understanding of the value of computer science education; their understanding of how their implementation of computer science education exemplifies quality teaching; and the current and long-term impact on computer science education locally, statewide, and nationally.

Gray will receive a total of $15,000 and a 2020 Computer Science Educator of the Year trophy. The awards were provided through funding from the ADE Office of Computer Science.

GOVERNOR'S ALL-STATE COMPUTER SCIENCE CODING COMPETITIONS WINNERS ANNOUNCED

LITTLE ROCK — Students from the Don Tyson School of Innovation in Springdale were named winners of Governor Asa Hutchinson's All-State Coding Competition. Due to COVID-19, Governor Hutchinson announced the winners via a video, which is available at https://youtu.be/1ImZZAAIcys.

As winners, James Cassady, Benjamin Easterling, and Lucas Kellar will receive 529 College Savings Plan scholarships totaling $2,000, each. Owen Bell, Julian Sanker, and Ganer Whitmire from Haas Hall Academy in Fayetteville placed second, and each will receive $1,000 scholarships. The third-place team of Tyler Lacroix, Ethan Peck, and Addison Zheng from Cabot High School will each receive $500 scholarships. In addition to these individual scholarships, the schools that sponsored the winning teams will be respectively awarded $10,000, $6,000, and $4,000 to support their computer science programs.

A total of 135 teams from across the state first participated in 15 regional competitions. 17 teams competed in the All-State Competition that was held virtually on May 2.

To learn more about Arkansas' Computer Science Initiative, visit http://bit.ly/ARKidsCanCode.

WINNERS OF THE GREAT ARKANSAS HISTORY VIDEO GAME CODING COMPETITION ANNOUNCED

LITTLE ROCK — Governor Asa Hutchinson and the Arkansas Department of Education's Office of Computer Science is pleased to announce the winners of the inaugural Great Arkansas History Video Game Coding Competition.

This competition was open to all Arkansas students in grades 4 through 8. By emphasizing storytelling, state history, and coding, this competition allowed students to demonstrate their coding abilities while supporting literary growth and expanding their knowledge of Arkansas history. The theme for this year's contest was the impact of the Civilian Conservation Corps on the development of the state park system.

Students at Hellstern Middle School (Springdale Public Schools) are the winners of the contest.
Each of the winners will receive a $1,000 award, and the school will receive a $2,500 award.
Arkansas Arts Academy Team 1 and Team 2 won second place and third place, respectively. Honorable mention was awarded to Murfreesboro Elementary School. All of these students will receive a #CSforAR prize kit.

Every student who participated this year will receive a Circuit Playground Express coding device.

This contest will start anew this fall with a brand new topic and will provide Arkansas middle schools a new opportunity to compete. For more information about the upcoming competition, please visit http://bit.ly/ARCSHistComp. This year's winning submission is playable at https://scratch.mit.edu/projects/365192281.

UNIVERSITY OF CENTRAL ARKANSAS'S COLLEGE OF EDUCATION ANNOUNCES ONLINE INSTRUCTIONAL TECHNOLOGY GRADUATE PROGRAM

The CSforAR team is pleased to highlight various postsecondary institutions and their offerings in the fields of: Computer Science, STEM, Cybersecurity, etc. This highlighted program comes from the College of Education at University of Central Arkansas (UCA).

The University of Central Arkansas's College of Education is excited to introduce it's fully online Instructional Technology Graduate Program which includes a new concentration- Computer Science Teaching and Learning. This program concentration in K-12 Computer Science is designed to provide current educators who do not have a computer science background content and background knowledge to successfully pass the Computer Science Praxis exam.

The program offers two paths:

1. Master of Science in Instructional Technology Computer Science Teaching and Learning (30 credits - 10 courses at 3 credits each)
2. Graduate Certificate Instructional Technology Computer Science Teaching and Learning (15 credits - 5 courses at 3 credits each)

The Computer Science Teaching and Learning emphasis provides K-12 educators with the knowledge and skills needed to become technology leaders and practitioners in teaching computer science concepts at various levels and across content areas in K-12 schools. The Computer Science courses focus on both the technical aspects of computer science such as coding, networking, and data, as well as the teaching and learning of computer science such as scaffolding, working off-line, and computational thinking.

Courses in the Computer Science concentration are offered each semester on a rotation basis- at least 2 subject-specific courses available each semester. Course formats are a blend of synchronous (instructor and students meet at a set time in a virtual classroom) and asynchronous (students work at his/her own pace) delivery methods. For more information, please see the University of Central Arkansas ITEC page https://uca.edu/leadershipstudies/itec/.

Questions about the ITEC program- Computer Science Teaching and Learning concentration may be directed to Dr. Erin Shaw erins@uca.edu or Dr. Louis Nadelson lnadelson1@uca.edu

ARKANSAS TEACHERS CONTINUE TO EXCEL IN PERFORMANCE

As Arkansas CS Specialists continue the transition to delivering digital professional development this summer, they are also connecting with Arkansas teachers to encourage them to add the Computer Science 528 certification to their license, which requires a passing score of the Praxis 5652. Educational Testing Service (ETS) is currently allowing the Praxis test to be delivered as an at-home exam by partnering with ProctorU Systems.

Recently, two Arkansas teachers decided to take the at-home Praxis 5652 exam after attending the CSforAR High School Computer Science and Certification Preparation in June, and both have reported passing. The CS Specialists love to hear how Arkansas teachers are faring on the Praxis so they can celebrate successes and support further attempts if need be. If you are interested in further information on how to prepare for the Praxis 5652, please contact CS Specialist Jim Furniss at jim.furniss@arkansas.gov.

CSFORAR TEAM SPOTLIGHT

“Being born in 1986, I fell into a special generation. Early on, I lived in the world of that old awful dial-up internet that may or may not work on the first try, calling my friends from a phone connected to my kitchen wall, and having to remember every phone number I needed. Now I live in the world of cell phones with endless memory, coding programs for kids, and video games that look as real as the people standing in front of me. Needless to say, Computer Science has come a very long way!

“Now, I have the opportunity to work with the #CSforAR initiative. I have the opportunity to keep encouraging innovation in our state. As a mom of five kids and a former elementary educator, I see the importance of teaching our students early on how to succeed in a world where computer science and technology is all around them. It is always changing and growing with them.

Working with this team and the educators across the state has been so much fun, and I look forward to learning much more from our talented specialists. I feel honored to be a part of this awesome team!”

As always, the CSforAR team is here to help! Please feel free to contact her at emily.torres@arkansas.gov should you have any questions.

HACK ACROSS ARKANSAS 0X02 - WHAT IS A CTF?

Eli McRae,
Computer Science Specialist for the State of Arkansas

A hacking competition? That can’t be a real thing, can it?

It turns out that these hacking tournaments do exist, and are often titled Capture The Flag events--or just CTFs--and are a popular and effective teaching tool. The structure of these events is not unlike a practical exam where a student is placed in a scenario and asked to perform. These events can last any amount of time but are generally 12-72 hours long. Challenge authors specifically create scenarios and programs to be hacked in some way. These vulnerabilities often mimic real-life bugs and vulnerabilities that occur in software.

There are two dominant styles of CTF. Jeopardy-style CTFs allow students to pick from various categories such as web hacking, forensics, binary exploitation, and reverse engineering, network penetration testing, and cryptography just to name a few. As they solve these progressively more difficult challenges, they collect flags, which are artifacts as evidence of success that are submitted for points.

The other style, Attack-and-Defend CTFs, pit participants against each other where each team must simultaneously try to exploit vulnerabilities in other team’s infrastructure and defend their own against exploitation. Players are given software or systems that have been intentionally weakened in some way. Sometimes the custom software that they must protect is effectively a black box. They must attack their own in order to understand how to defend it. Teams earn points by ensuring that their infrastructure isn’t taken down.

In either of these game types, ingenuity and perseverance are rewarded. Often, participants find that they have learned more over the course of 48 hours than they would have in weeks or semesters. It’s fun and engaging. Give it a shot.

Further Reading:
A CTF framework and explanation -> https://ctfd.io/whats-a-ctf/
A CTF in Arkansas -> **JOLT Hackathon CTF - A Beginners Guide**
A High School CTF -> **ASMSA hosting HighSchoolHack competition**

GOVERNOR'S COMPUTER SCIENCE & CYBERSECURITY TASKFORCE:
CYBERSECURITY AND DATA SCIENCE SUBCOMMITTEE OVERVIEW

By Dr. Stephen Addison
Dean of the College of Natural sciences and Mathematics (CNSM) at the University of Central Arkansas (UCA) and a Professor of Physics

I am honored to be serving as the chair of the Cybersecurity and Data Science subcommittee of Governor Hutchinson's Computer Science and Cybersecurity Task Force. The members of the subcommittee are Susan Norton, Anthony Owen, Hung-Chi Su, Lee Watson, and Bill Yoder, as well as regular contributors G.B. Cazes and Dr. Jessie Walker.

I joined the UCA faculty in 1984 and am just beginning my 37th year of service. I have served as CNSM Dean since 2012. Throughout my career, I have worked on developing collaborations across Arkansas Institutions of Higher Education, as well as working to support the coordinated effort with the K-12 sector. Working to develop programs in Computer Science, Computer Engineering, Data Science, and Cybersecurity has been a particular emphasis. I have worked closely with UCA's Department of Computer Science since its formation, and have aided in the development of its programs in Computer Engineering and Cybersecurity. I have also worked to develop degree tracks in Data Science across the university. Recent efforts have included the establishment of the Arkansas Cyber Range at UCA, which I direct, and extensive efforts to develop Data Science Programs across the state in collaboration with the Arkansas Center for Data Science (ACDS).

The Arkansas Cyber Range enables both university and K-12 students to develop cybersecurity skills in a sandbox environment isolated from the wider internet. This enables students to develop real-world skills in a safe environment. University and K-12 students from across the state regularly use this facility by coming to campus and remotely from their own campuses and schools using secure remote connections.

Ongoing efforts in Data Science have included collaboration with ACDS Director and fellow subcommittee member Bill Yoder, and University of Arkansas data scientist Karl Schubert. We have been working together to promote the development of a shared data science curriculum across Arkansas institutions of Higher Education. Additionally, Dr. Schubert and I are the co-leads for the workforce and education effort in the State's recently awarded National Science Foundation Track 1 EPSCoR grant. That project will bring 20 million dollars to support efforts in data science over the next five years.

The subcommittee has given detailed consideration as to what is needed to develop robust educational programs to support the development of the cyber and data science industries in Arkansas and to the protection of information for Arkansans and Arkansas industries. The subcommittee has also given considerable thought to the development of the infrastructure needed to support the development of Cybersecurity and Data Science in Arkansas.

The subcommittee is grateful to the efforts of Task Force Chair, Mr. Bill Gossage, Dr. Allison Roberts, and Anthony Owen and his team at the Department of Education for making this an easy transition and for enabling us to contribute to the development of a final report that will support the attainment of the Governor's goals for the Computer Science and Cybersecurity Task Force.

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